MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2015/2016

BFN3144 – FINANCIAL DERIVATIVES
(All sections / Groups)

8 March 2016
2:30 p.m. – 4:30 p.m.
(2Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 pages. There are a total of 4 questions.

2. Answer **ALL** questions.

3. Marks are shown at the end of each question.

Answer all questions in the answer booklet provided.

QUESTION 1 (25 marks)

(a) Based on the following statistics on Bursa Malaysia Derivatives, answer the following questions.

Month	3-Month KLIBOR Futures		KLCI Options		Options on Crude Palm Oil Futures	
	Mth Volume	Mth-End Open Interest	Mth Volume	Mth-End Open Interest	Mth Volume	Mth-End Open Interest
May/15	20	902	249	96	0	0
Jun/15	140	944	533	139	1,000	1,000
Jul/15	20	964	328	56	300	1,300
Aug/15	390	1,114	1,211	1,050	0	1,300
Sep/15	70	620	271	45	0	1,300
Oct/15	30	590	211	65	1,000	2,300

(i) Name the underlying assets of the three products listed in the table.   (3 marks)

(ii) Differentiate between volume and open interest.   (4 marks)

(iii) If you were the Chief Financial Officer (CFO) of Titijaya Berhad and your company needs to borrow RM10 million for a project, what risk does your company face? Which product to use to hedge against the risk? What is your strategy?   (7 marks)

(iv) Given the KLCI options and Options on crude palm oil futures, discuss the advantages of using options over the futures.   (5 marks)

(b) Which party, writer or holder is liable to pay the margin when using options? Explain the reasons why.   (6 marks)

QUESTION 2 (25 marks)

(a) You believe that the stock of Ikari Berhad (IB) will be in a short-term bullish and it is trading at RM4.15 now. Given the information below, discuss the best strategy to perform.

Continued…

IB September RM5 Put @ RM1.00
IB September RM3 Put @ RM0.50

Calculate the maximum profit and loss as well as break-even price. Given the possible prices, fill in the table below. Also draw the payoff diagram and label the break-even price, maximum profit and loss points. [Assume 1 contract=100 stocks & you trade 10 contracts]

Stock Price	Profit/loss-RM5.00 Put @ RM1.00	Profit/loss- RM3.00 Put@RM0.50	Profit/Loss
2.0			
2.5			
3.0			
3.5			
4.0			
4.5			
5.0			
5.5			
6.0			

(16 marks)

(b) The price of options contains TWO values. What are these two values? Explain both values.
(5 marks)

(c) In table below, indicate the effect on call and put premium when there is an increase or decrease in underlying asset price.

Underlying asset price	Call premium	Put premium
Increase		
Decrease		

(4 marks)

QUESTION 3 (25 marks)

(a) Below is the monthly statistics of structured warrants traded at Bursa Malaysia. What are structured warrants? What are the differences between warrants and structured warrants?

Continued...

Bursa Malaysia - Structured Warrants Information For The Month Of October 2015

No.	Stock Name	Security Type	No. of Warrants Outstanding	Maturity Date	Exercise Price (RM)/Level	Conversion Ratio	Share Per Warrant	Premium / (Discount)	Gearing
1	A50CHN-C3	Call WARRANTS	40,000,000	27 Nov 2015	HKD 13.50	8 for 1	0.125	-	-
2	AAX-CR	Call WARRANTS	100,000,000	30 Dec 2015	0.531	0.8042 for 1	1.243	180.99%	50.96
3	AAX-CS	Call WARRANTS	40,000,000	09 Dec 2015	0.563	0.8042 for 1	1.243	178.60%	60.98
4	AEON-CD	Call WARRANTS	100,000,000	11 Dec 2015	3.000	4 for 1	0.250	23.67%	5.66
5	AEON-CE	Call WARRANTS	50,000,000	30 Jun 2016	3.150	3 for 1	0.333	15.55%	23.58
6	AFFIN-CS	Call WARRANTS	50,000,000	31 Dec 2015	2.750	3 for 1	0.333	15.69%	159.33
7	AFG-CO	Call WARRANTS	50,000,000	29 Apr 2016	4.650	4 for 1	0.250	31.56%	58.87
8	AIRASIAC17	Call WARRANTS	100,000,000	30 Dec 2015	2.700	4 for 1	0.250	83.78%	74.00
9	AIRASIAC18	Call WARRANTS	100,000,000	27 Nov 2015	2.800	3.5 for 1	0.286	90.37%	84.57
10	AIRASIAC19	Call WARRANTS	50,000,000	29 Feb 2016	2.500	4 for 1	0.250	70.27%	74.00
11	AIRASIAC20	Call WARRANTS	26,000,000	01 Dec 2015	2.500	2 for 1	0.500	69.59%	148.00
12	AIRASIAC21	Call WARRANTS	40,000,000	19 Feb 2016	2.300	3 for 1	0.333	56.42%	98.87
13	AIRASIAC22	Call WARRANTS	40,000,000	29 Apr 2016	1.650	2 for 1	0.500	25.00%	7.40
14	AIRASIAC23	Call WARRANTS	35,000,000	29 Jan 2016	1.800	2.5 for 1	0.400	28.36%	14.80
15	AIRASIAC24	Call WARRANTS	40,000,000	31 May 2016	1.050	1.5 for 1	0.667	5.41%	2.90
16	AIRASIAC25	Call WARRANTS	35,000,000	07 Mar 2016	1.200	1.2 for 1	0.833	7.84%	3.74
17	AIRASIAC26	Call WARRANTS	100,000,000	18 Jul 2016	0.900	1.5 for 1	0.667	9.97%	2.03
18	AIRASIAC27	Call WARRANTS	100,000,000	28 Oct 2016	1.280	3 for 1	0.333	13.85%	3.65
19	AIRASIAC28	Call WARRANTS	100,000,000	28 Oct 2016	1.480	3 for 1	0.333	21.28%	4.70
20	AIRASIA-HB	PUT WARRANTS	40,000,000	31 May 2016	1.050	1.5 for 1	0.667	34.63%	17.94

(10 marks)

(b) Given the following information, use Black-Scholes Options Pricing Model to calculate the fair value of a put option.

Current stock price	= RM40.00
Exercise price	= RM35.00
Interest rate	= 12% per annum
Maturity of the option	= 180 days
Standard deviation	= 30%
Dividend	= 0

[Assume 1 year =360 days]

(15 marks)

QUESTION 4 (25 marks)

(a) Read the news carefully and answer the following questions.

> **South Korea, Malaysia agree to use $4.7 billion currency swap deal for trade**
>
> South Korea and Malaysia have agreed to utilise their currency swap agreement worth around $4.7 billion to boost the use of the won (KRW) and ringgit (MYR), the Bank of Korea and the finance ministry said in a joint statement on Monday.
>
> Starting next month, central banks in both countries will begin lending the currencies to companies through local banks to settle trade bills.

Continued...

The lending facility is similar to a step in December 2012 to increase the use of the Chinese yuan (CNY) and the won through a bilateral currency swap.

South Korea signed a currency swap deal with Malaysia in October last year that lets either country swap 5.0 trillion Korean won for 15 billion Malaysian ringgit. It was signed amid a flurry of swap deals with other countries, including the United Arab Emirates and Indonesia.

The swap deals were meant to improve South Korea's financial risk management during times of extreme stress in global markets.

The Bank of Korea had said they would expand the use of local currencies in trade settlements in 2012.

A central bank official said demand for the ringgit for trade settlements was expected to be modest at first, adding that the bank plans to hold discussions with firms in Seoul to explain the terms of the new facility.

The Bank of Korea did not confirm the amount that would be lent to local banks, but the loans would be provided with maturities up to six months, the statement said.

(Reporting by Christine Kim; Editing by Shri Navaratnam)

Source: Reuters, Business News, May 26, 2014

(i) Define currency swap agreement.   (6 marks)

(ii) Discuss what risk can be minimized by using currency swap. What are the reasons for a counterparty to enter into a currency swap?   (10 marks)

(b) Explain the mechanism of credit default swap.   (5 marks)

(c) Explain which market that swap contracts are traded in.   (4 marks)

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Table: Cumulative Normal Distribution

d	N(d)	d	N(d)	d	N(d)	d	N(d)	d	N(d)	d	N(d)
-3.00	.0013	-1.58	.0571	-0.76	.2236	0.06	.5239	0.86	.8051	1.66	.9515
-2.95	.0016	-1.56	.0594	-0.74	.2297	0.08	.5319	0.88	.8106	1.68	.9535
-2.90	.0019	-1.54	.0618	-0.72	.2358	0.10	.5398	0.90	.8159	1.70	.9554
-2.85	.0022	-1.52	.0643	-0.70	.2420	0.12	.5478	0.92	.8212	1.72	.9573
-2.80	.0026	-1.50	.0668	-0.68	.2483	0.14	.5557	0.94	.8264	1.74	.9591
-2.75	.0030	-1.48	.0694	-0.66	.2546	0.16	.5636	0.96	.8315	1.76	.9608
-2.70	.0035	-1.46	.0721	-0.64	.2611	0.18	.5714	0.98	.8365	1.78	.9625
-2.65	.0040	-1.44	.0749	-0.62	.2676	0.20	.5793	1.00	.8414	1.80	.9641
-2.60	.0047	-1.42	.0778	-0.60	.2743	0.22	.5871	1.02	.8461	1.82	.9656
-2.55	.0054	-1.40	.0808	-0.58	.2810	0.24	.5948	1.04	.8508	1.84	.9671
-2.50	.0062	-1.38	.0838	-0.56	.2877	0.26	.6026	1.06	.8554	1.86	.9686
-2.45	.0071	-1.36	.0869	-0.54	.2946	0.28	.6103	1.08	.8599	1.88	.9699
-2.40	.0082	-1.34	.0901	-0.52	.3015	0.30	.6179	1.10	.8643	1.90	.9713
-2.35	.0094	-1.32	.0934	-0.50	.3085	0.32	.6255	1.12	.8686	1.92	.9726
-2.30	.0107	-1.30	.0968	-0.48	.3156	0.34	.6331	1.14	.8729	1.94	.9738
-2.25	.0122	-1.28	.1003	-0.46	.3228	0.36	.6406	1.16	.8770	1.96	.9750
-2.20	.0139	-1.26	.1038	-0.44	.3300	0.38	.6480	1.18	.8810	1.98	.9761
-2.15	.0158	-1.24	.1075	-0.42	.3373	0.40	.6554	1.20	.8849	2.00	.9772
-2.10	.0179	-1.22	.1112	-0.40	.3446	0.42	.6628	1.22	.8888	2.05	.9798
-2.05	.0202	-1.20	.1151	-0.38	.3520	0.44	.6700	1.24	.8925	2.10	.9821
-2.00	.0228	-1.18	.1190	-0.36	.3594	0.46	.6773	1.26	.8962	2.15	.9842
-1.98	.0239	-1.16	.1230	-0.34	.3669	0.48	.6844	1.28	.8997	2.20	.9861
-1.96	.0250	-1.14	.1271	-0.32	.3745	0.50	.6915	1.30	.9032	2.25	.9878
-1.94	.0262	-1.12	.1314	-0.30	.3821	0.52	.6985	1.32	.9066	2.30	.9893
-1.92	.0274	-1.10	.1357	-0.28	.3897	0.54	.7054	1.34	.9099	2.35	.9906
-1.90	.0287	-1.08	.1401	-0.26	.3974	0.56	.7123	1.36	.9131	2.40	.9918
-1.88	.0301	-1.06	.1446	-0.24	.4052	0.58	.7191	1.38	.9162	2.45	.9929
-1.86	.0314	-1.04	.1492	-0.22	.4129	0.60	.7258	1.40	.9192	2.50	.9938
-1.84	.0329	-1.02	.1539	-0.20	.4207	0.62	.7324	1.42	.9222	2.55	.9946
-1.82	.0344	-1.00	.1587	-0.18	.4286	0.64	.7389	1.44	.9251	2.60	.9953
-1.80	.0359	-0.98	.1635	-0.16	.4365	0.66	.7454	1.46	.9279	2.65	.9960
-1.78	.0375	-0.96	.1685	-0.14	.4443	0.68	.7518	1.48	.9306	2.70	.9965
-1.76	.0392	-0.94	.1736	-0.12	.4523	0.70	.7580	1.50	.9332	2.75	.9970
-1.74	.0409	-0.92	.1788	-0.10	.4602	0.72	.7642	1.52	.9357	2.80	.9974
-1.72	.0427	-0.90	.1841	-0.08	.4681	0.74	.7704	1.54	.9382	2.85	.9978
-1.70	.0446	-0.88	.1894	-0.06	.4761	0.76	.7764	1.56	.9406	2.90	.9981
-1.68	.0465	-0.86	.1949	-0.04	.4841	0.78	.7823	1.58	.9429	2.95	.9984
-1.66	.0485	-0.84	.2005	-0.02	.4920	0.80	.7882	1.60	.9452	3.00	.9986
-1.64	.0505	-0.82	.2061	0.00	.5000	0.82	.7939	1.62	.9474	3.05	.9989
-1.62	.0526	-0.80	.2119	0.02	.5080	0.84	.7996	1.64	.9495		
-1.60	.0548	-0.78	.2177	0.04	.5160						

This table shows the probability (N(d)) of observing a value less than or equal to d. For example, as illustrated, if d is -.24, then N(d) is .4052.